

What is claimed is:

1 1. A thin film transistor-LCD, comprising:
2 a transparent substrate provided with at least two
3 adjacent gate electrodes;
4 a gate insulating layer on the gate electrodes;
5 a semiconductor layer in a predetermined shape on
6 the insulating layer;
7 a source/drain electrode layer on a predetermined
8 area of the transparent substrate;
9 an insulating layer on the source/drain electrode
10 layer;
11 a contact hole via the insulating layer,
12 source/drain electrode layer, and gate
13 insulating layer, exposing a part of the
14 surface of transparent substrate between the
15 adjacent gate electrodes;
16 a transparent conductive layer on the transparent
17 substrate; and
18 a light-shielding matrix directly above the contact
19 hole.

1 2. The thin film transistor-LCD as claimed in
2 claim 1, wherein the gate electrode is a Mo-Al-Nd
3 electrode.

1 3. The thin film transistor-LCD as claimed in
2 claim 1, wherein the source/drain electrode layer is an
3 Al, Al-Nb, Al-Nd, Al-Ti or Al-Si-Cu layer.

1 4. The thin film transistor-LCD as claimed in
2 claim 1, wherein the gate insulating layer is an oxide
3 layer formed by chemical vapor deposition.

1 5. The thin film transistor-LCD as claimed in
2 claim 1, wherein the insulating layer is an oxide or
3 nitride layer formed by chemical vapor deposition.

1 6. The thin film transistor-LCD as claimed in
2 claim 1, further comprising a color filter a
3 predetermined distance above the transparent substrate,
4 wherein the light-shielding matrix directly above the
5 contact hole is disposed on the color filter.

1 7. The thin film transistor-LCD as claimed in
2 claim 1, wherein the gate electrodes are separate from
3 the contact hole.

1 8. A thin film transistor-LCD, comprising:
2 a transparent substrate provided with at least two
3 adjacent gate electrodes;
4 a gate insulating layer on the gate electrodes;
5 a semiconductor layer in a predetermined shape on
6 the insulating layer;
7 a source/drain electrode layer on a predetermined
8 area of the transparent substrate;
9 an insulating layer on the source/drain electrode
10 layer;
11 a contact hole, separate from the gate electrodes,
12 via the insulating layer, source/drain
13 electrode layer, and gate insulating layer,

exposing a part of the surface of transparent substrate between the adjacent gate electrodes; an indium thin oxide layer on the transparent substrate; a color filter provided a predetermined distance above the transparent substrate; and a light-shielding matrix on the color filter, directly above the contact hole.

9. The thin film transistor-LCD as claimed in claim 8, wherein the gate electrode is a Mo-Al-Nd electrode, and the source/drain electrode layer is an Al, Al-Nb, Al-Nd, Al-Ti or Al-Si-Cu layer.

10. The thin film transistor-LCD as claimed in claim 8, wherein the gate insulating layer is an oxide layer and the insulating layer is an oxide or nitride layer formed by chemical vapor deposition.

11. A method of fabricating a thin film transistor-LCD, comprising:

depositing a first metal layer on a transparent substrate;

patterning the first metal layer to form at least two adjacent gate electrodes;

forming a gate insulating layer on the gate electrodes;

forming a semiconductor layer on the insulating layer;

patterning the semiconductor layer into a predetermined shape;

13 depositing a second metal layer on the transparent
14 substrate;
15 patterning the second metal layer to form a
16 source/drain electrode layer;
17 depositing an insulating layer on the transparent
18 substrate;
19 defining a contact hole via the insulating layer,
20 source/drain electrode layer, and gate
21 insulating layer, exposing a part of the
22 surface of transparent substrate between the
23 adjacent gate electrodes;
24 depositing a transparent conductive layer on the
25 transparent substrate; and
26 forming a light-shielding matrix directly above the
27 contact hole.

1 12. The method as claimed in claim 11, wherein the
2 gate electrode is a Mo-Al-Nd electrode.

1 13. The method as claimed in claim 11, wherein the
2 source/drain electrode layer is an Al, Al-Nb, Al-Nd, Al-
3 Ti or Al-Si-Cu layer.

1 14. The method as claimed in claim 11, wherein the
2 gate insulating layer is an oxide layer formed by
3 chemical vapor deposition.

1 15. The method as claimed in claim 11, wherein the
2 insulating layer is an oxide or nitride layer formed by
3 chemical vapor deposition.

1 16. The method as claimed in claim 11, further
2 comprising a step of providing a color filter a
3 predetermined distance above the transparent substrate,
4 wherein the light-shielding matrix directly above the
5 contact hole is disposed on the color filter.

1 17. The method as claimed in claim 11, wherein the
2 gate electrodes are separated from the contact hole.

1 18. A method of fabricating a thin film transistor-
2 LCD, comprising:
3 depositing a first metal layer on a transparent
4 substrate;
5 patterning the first metal layer to form at least
6 two adjacent gate electrodes by
7 photolithography;
8 forming a gate insulating layer on the gate
9 electrodes;
10 forming a semiconductor layer on the insulating
11 layer;
12 patterning the semiconductor layer into a
13 predetermined shape by photolithography;
14 depositing a second metal layer on the transparent
15 substrate;
16 patterning the second metal layer to form a
17 source/drain electrode layer by
18 photolithography;
19 depositing an insulating layer on the transparent
20 substrate;

21 defining a contact hole by photolithography,
22 separated from the gate electrodes, via the
23 insulating layer, source/drain electrode layer,
24 and gate insulating layer, exposing a part of
25 the surface of transparent substrate between
26 the adjacent gate electrodes;
27 depositing an indium tin oxide layer on the
28 transparent substrate;
29 providing a color filter a predetermined distance
30 above the transparent substrate, having a
31 light-shielding matrix directly above the
32 contact hole.

1 19. The method as claimed in claim 18, wherein the
2 gate electrode is a Mo-Al-Nd electrode; the source/drain
3 electrode layer is an Al, Al-Nb, Al-Nd, Al-Ti or Al-Si-Cu
4 layer.

1 20. The method as claimed in claim 18, wherein the
2 gate insulating layer is an oxide layer and the
3 insulating layer is an oxide or nitride layer formed by
4 chemical vapor deposition.